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ABSTRACT

Current research indicates that hospitalized children may profit best from preparation for surgery that is individually suited to their particular way of responding to hospitalization. It is likely, however, that preparation treatments will be provided for children in groups. Therefore, an attempt has been made to design and test information and modeling procedures which can be presented to a group of children but also which can be subsequently individualized by parent and child to suit the child's needs. Four treatment groups were compared: (1) the first group received information in the form of a puppet show (the puppet told the children about aspects of hospitalization, including admission procedures, the pre-surgery medical examination, anesthesia, surgery and recovery); (2) the second group saw the puppet presentation and a film about a young patient going through hospitalization, surgery and recovery; (3) the third group received the puppet presentation plus added coping material teaching children to relax their muscles and to use imagery and self-instruction; and (4) the fourth group saw the puppet presentation, the coping material and the film. As expected, the use of these procedures was found to be effective, but, unexpectedly, children exposed to the film plus puppet show were more anxious and less cooperative than children who saw only the puppet show. Since comparisons between the film and the other procedures would be invalidated if the film was ineffective, a similar study, including a control group, was conducted. The film was transferred to videotape and a few alterations were made in the sequence of scenes. Experimental group children were given the chance to view a puppet show, a videotape produced locally, or the videotaped film. All three procedures were equally effective. Pragmatic implications are discussed. (Author/RH)

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The Importance of Comparative Research in Psychological Preparation of Children

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I'm going to describe in this presentation a research program substantially different than those of my colleagues, although I believe it to be very compatible with these other approaches. I will give you a little background to the approach, discuss some research data emanating from such an approach, argue a little for the approach, and then let you draw your own conclusions.

In 1978, our research group completed a survey of the pediatric hospitals in the United States (Peterson & Ridley Johnson, 1980). The good news from the survey was that nearly 3/4 of these hospitals have some form of psychological preparation for children available for at least some of their patients. This was a much higher proportion than we had expected and was very encouraging. The bad news was that even in these hospitals which were especially geared toward children, only a minority of all children were actually receiving preparation. It would appear that the bad news continues. Far fewer general hospital pediatric wards have any formal preparation at all and those hospitals offering some form of preparation often do not include all potential child patients. Finally, many hospitals employ methods of preparation which have not been evaluated or shown to be effective.

It is difficult to reconcile these facts with the research literature in the area of childhood preparation. It is quite clear that hospitalization and surgery can be very traumatic to young children, and that adequate preparation

can not only reduce the child's immediate anxiety, but can reduce parental anxiety (e.g., Peterson & Shigetomi, 1981), make intervention by physicians and nurses easier (e.g., Wolfer & Visintainer, 1975) and may even result in positive long term reactions to hospitalization (Peterson & Shigetomi, in press). It is fairly clear, at least in general, that some information is better than no information for both most children (Cassell, 1965) and parents (Skipper & Leonard, 1968), and that modeling is an effective way to deliver information (Vernon & Bailey, 1974). It also seems very likely that modeling does more than simply deliver information (e.g., Melamed & Siegel, 1975) and that other techniques such as sensory information (Johnson, 1975) and coping strategies (Peterson & Shigetomi, 1981) may add to the benefits derived from information and modeling. It is thus unclear why so many hospitals have failed to employ any formal preparation for children and why even in hospitals providing preparation, it is not made available to all children and is rarely evaluated.

There are a variety of reasons for this lack of support for preparation programs. Despite repeated attempts by the Association of Operating Room Nurses to provide education of the subject, not all nurses are aware of the importance of preparation. Many hospitals claiming they provide preparation actually provide "patient education" by the nurses, and this procedure occurs only when the understaffed nurses find time to administer it. Similarly, physicians may be unlikely to contact a great deal of the relevant research in this area. They may feel either that preparation can be accomplished with a brief chat in their office or in the child's room the night before surgery (since that was the way they were trained) or they may feel the responsibility for preparation should rest with the parents or the nursing staff. The majority of individuals responding to our pediatric hospital survey questionnaire indicated that they were more convinced of the utility and necessity of

preparation than were other staff members or the hospital administration which paid for the intervention (Peterson & Ridley-Johnson, 1979). This latter point seems important. Hospital administrators may be even less convinced of the utility and importance of psychological preparation than are nurses and physicians. Yet with the support of hospital administrators, preparation is insured. Without it, preparation programs fight an uphill battle for funding, manpower, space, and patient contact.

My own experience suggests that hospital administrators, in addition to physicians, nurses, and child life workers have specific reservations about preparation programs. Even before asking what the benefits of preparation are, hospital personnel are likely to ask "What does it cost? Who will take responsibility for delivery of services? How will it fit with the rest of our routine?" I should note here that "cost" is a relative factor, the cost in terms of personnel effort and expenditure of energy may be a much more important factor than financial outlay. The results of our survey might tend to support this premise. The most commonly used procedures included relatively automatic kinds of preparation like films, books, and hospital tours. One person typically delivered the preparation, and children were usually prepared in groups rather than individually.

Those of us doing research on psychological preparation with children find ourselves in a quandary currently. There is evidence among <u>adult</u> subjects that some forms of preparation can actually decrease rather than increase an individual's ability to cope with hospitalization and surgery (e.g., Andrew, 1970). There are also indications that children have different characteristic ways of responding to hospitalization (see Siegel's paper of this symposium), and that differing children may profit from different forms of preparation. At the same time, there is a tendency for the medical community utilizing the

services to resist any lack of individualization in treatment, both in the techniques offered and in the timing of the preparation given. Indeed, not a single treatment program we surveyed described any assessment of individual need and individual preparation in their program.

We here today are all agreed that each child should receive the preparation most suitable for his or her unique needs. However, I believe we should also agree that many times if a child is to be treated at all, he or she will be treated in a group and that group will receive only one treatment. If this is so, that one treatment should be the best possible treatment both for the statistical "average" child in the group, and for each individual child. This describes the impetus behind my research program. My group has attempted to design and test procedures which can be presented to a group of children but also which can subsequently be individualized by the parent and child to suit the unique needs of that child. We have proceeded to do this using a component analysis or comparative approach. We began our first study with the presumption that if only one procedure would be presented to a group of children, a procedure containing some information was better than none. Thus, in our first study rather than the traditional no-treatment control, we began with a procedural information control in the form of a puppet who went through the relevant aspects of hospitalization from admission and medical exam on the ward to anesthesia induction, surgery and recovery. We also included some procedural niceties like an invitation, a pleasant setting with colorful posters, and a hospital tour. Although the majority of studies have utilized more sterile presentations to control all sources of variance, our survey suggested that the majority of hospitals presented information in this kind of context and thus this presentation seemed more representative of real world practices. If these small niceties didn't alter the treatment, fine. If they did, we wanted to know how.

There were problems with this "control group," however, and the problems weren't clear until we had completed two more studies. I'll discuss this and other problems shortly.

At any rate, after forming an information group for comparison, we added a successful modeling procedure to the information component. We wanted to include an example of the currently most effective form of preparation. Dr. Melamed was kind enough to loan us a copy of "Ethan Has An Operation," a color film of a young male patient actually going through hospitalization, surgery, and recovery (Melamed & Siegel, 1975). We then added a coping skills procedure in which the puppet modeled and the children were taught to relax their muscles and to use imagery and self-instruction. Parents were trained to act as the child's therapists and prompters. Finally, we combined the modeling and coping techniques in a fourth treatment group. Thus, one group simply received information in the form of a puppet show, one group received the puppet show and modeling film, another received the puppet show and coping techniques, and one group saw the puppet show, coping techniques, and modeling film.

The results were as one might anticipate, with a slight twist. We had anticipated that the coping skills would add a degree of improvement over and above the other procedures, and this appeared to be the case. Children receiving the coping techniques seemed to recover more rapidly. They were judged to be less anxious and more cooperative by a blind observer, by the parent, and by the attending nurse. The parents of children receiving the coping techniques were also less anxious and felt more competent than the other parents. Interestingly, parents and their children typically selected only one of the three coping techniques for use, and the three techniques were each selected by about one-third of the subjects. These results were anticipated.

The slight twist in the results appeared as a difference between the puppet control group and the group viewing both the puppet information presentation and the modeling film. Since most of us agree that modeling should add something to simple information, we had anticipated that the modeling plus puppet information group would be better off than the puppet information alone group. Not only was this not the case, but on some occasions the children receiving the puppet show and the film were more anxious and less cooperative than children receiving only the puppet show.

This didn't make sense; two effective treatments should be better, not worse than one. So, this experiment answered an important question--the coping techniques did seem to add a bit of personalized control for most children. But the experiment also left us with a couple of questions we hadn't had before concerning the way in which most modeling films are used, questions that could only come from a comparative approach. The film "Ethan Has An Operation," like many other commercial films, was filmed in one particular hospital, with a particular sequence of events which occurred. Unlike most commercial films, it had been carefully tested and found to be successful in reducing distress in children at the hospital in which it was filmed. However, it was now being employed in a different setting and the order and type of procedures differed slightly. It would be very unfortunate if the slight inaccuracies in a commercial film caused it to be an ineffective method of preparation in other hospitals, since many pediatric hospitals indicate that they utilize commercial modeling films. Similarly, it would be unfortunate if the film was useful when employed as Melamed and Siegel (1975) had originally employed it, with a single child, in

the absence of the child's parents, but was ineffective if used in a group of children with parents present, the mode likely in many pediatric settings. Finally, it was possible that the modeling film and the puppet show had some conflicting information and that the contradictory nature of the procedure caused a problem. For example, the boy in the film described the pediatric hospital's ceiling..."You can watch the footsteps on the ceiling, they will lead you back to your room after surgery." In contrast, the puppet (and later the actual child subjects) had no footsteps on the ceiling, and instead focused on the lights on the ceiling and going down in the elevator. Perhaps getting disparate information within the same presentation was confusing and this confusion resulted in increased anxiety. If this were so, this would be important, since hospitals mights be very likely to present locally accurate information in addition to the film.

We wanted to go on with our component analysis but first felt we had to answer these questions. Compromising the effectiveness of the modeling film would invalidate its comparison with the coping procedures. When comparing treatment efficacy, it is very important that both procedures be presented at optimal effectiveness (Homer & Peterson, 1980). Our next study, then, was begun at a hospital in a different state which offered no psychological preparation program. We utilized the more traditional no-treatment Experimenter attention control. These children received routine preparation by parents, nurse, and physician and met with the Experimenter who answered any questions they had and chatted pleasantly with the child. Other groups received pretty much the same treatment children in the first study had received, an invitation, a hospital tour, the chance to view either a puppet show, a videotape produced locally, or the film "Ethan Has An Operation" converted to videotape. The puppet show was structured to present "Teddy Bear" as a puppet model, who

narrated a typical hospital stay from admission to discharge and who interacted in an initially hesitant and later fearless manner with three-dimentional props which the children could also touch and manipulate. The locally produced videotape "Nathan Has An Operation" was scripted from "Ethan Has An Operation" and utilized almost identical dialogue. However, the order of certain scenes was switched and the type of procedure altered in come cases to give a more accurate representation of hospital routine and procedures. For example, Ethan was admitted to the ward first and later had a finger-prick blood test in his room. Nathan had his veni-puncture blood test first and later was admitted to the ward. Where Ethan had been an actual patient, Nathan was a child actor. Otherwise, the films were very similar.

The outcome of this study quelled many of our fears. All three of the modeling procedures were equally effective in decreasing children's anxiety and uncooperativeness, all resulted in fewer maladaptive child behaviors, and all produced less parental anxiety than in the no treatment control group. There were no consistent or significant differences in any of the modeling preparations, which is of theoretical importance. Slight minor procedural variations apparently do not impair the filmed model's ability to decrease distress. Similarly, the poorer quality of a locally produced videotape does not seem to decrease its efficacy. Finally, a symbolic puppet model when used with three-dimensional props can be as potent as a live but taped child model.

These findings have pragmatic implications. To the extent that these findings are generalizable to other settings, a hospital with videotape equipment can utilize it to make their own film, a hospital with a projector can purchase

a commercial film, and a hospital with a sufficiently motivated staff member can utilize a memorized puppet show. All can expect to get good results. However, hospitals might be cautioned not to combine a more procedurally accurate narrative with a modeling film. Our first study showed that the combined narrative and film together were less effective than the narrative alone and our second study showed this was probably not due to any problems with the film. Thus, the second study implicates the role of conflicting information as a factor in decreased efficacy of commercial modeling films.

This second study offers important pragmatic information in addition to answering questions posed by previous research. The most important information to our research group however, is theoretical, and concerns the question of a single "best" modeling procedure. If one is going to continue to do comparative research, one is likely to encounter comments like "Well, it does appear that the procedure offers benefit in addition to this modeling film. But of course if you had employed a better modeling film, the results might have been different." While such an argument can never be disproved, it is useful to know that several different types of approaches to modeling produce substantially the same results, and that one has not simply selected a problematic approach for comparison.

This leads us to the heart of the matter for our research program. Why would one want to continue to do comparative research, as opposed to programatically assessing a single procedure? I want to answer this question in a little detail but first I want to note some reasons you might not want to do comparative research.

You might not want to compare two effective procedures because reviewers are accustomed to researchers comparing something with nothing. The level of significant findings is likely to be much less when comparing an effective procedure to a more effective procedure, and yet our journals are likely to

regard findings of $p < .07$ or greater as unacceptable, even though this might indicate a surprisingly large and reliable difference between "effective" and "more effective." Furthermore, as Shaffer (1979) demonstrates in a recent article in the Journal of Behavioral Medicine, the multivariate analysis techniques used by most of us here to deal with the problem of multiple dependent variables can also reduce the apparent difference between two effective procedures. When a difference is small but extremely consistent across different dependent variables, this should improve our confidence that one procedure is actually more effective than the other. Instead, if the finding describes the same proportion of the variance each time, the multivariate technique will serve to obscure, not highlight the difference. Thus, when doing comparative research, unless there is a large difference between "effective" and "more effective," the researcher risks being stranded in the marshes of marginal significance, unable to publish the findings. Furthermore, although findings of no difference between procedures with differing costs have both theoretical and pragmatic importance, since one cannot prove the null hypothesis current standards make it difficult to report such results.

Another reason you might not want to do comparative research is a perceived absence of focus. Researchers have traditionally attempted to describe the one most effective treatment. Even now, it is more typical to see individuals concerned with how to manipulate a single treatment to fit a single subject than to compare treatment effectiveness with individual or groups of subjects.

Finally, you might not wish to do comparative research unless you wished either to do tirelessly automatic and useless comparisons, you wanted to compare procedures in a sterile and artificial way, or you wanted to expend a lot of energy arguing against automatic, sterile, and meaningless comparisons. For example, in our first study all children received a tour, ice cream, and a puppet

show. In addition, some children saw a film or received coping instructions or both. In spite of the similarities, such as tours and ice cream, group differences were found. However, some investigators would still argue that each component should be evaluated separately, even though it would never be presented in isolation in a real world, hospital setting. For example, some children should get ice cream and nothing else. If this group is performing as well as its comparison groups, we can get out of the preparation business and into ice cream. Some children should get the tour but no procedural information--and that should be a very strange experience, seeing areas in the hospital without an explanation of how they are related to one's stay. (If one were going to take time to give procedural information, why not use a modeling presentation to get the benefits of both?) Others could get information only, others would receive the coping techniques without being told about the situation in which they might use the techniques, and still others would receive combinations of ice cream and information, and so on. Either such precautions should be taken, some investigators argue, or the treatment components should be compared in isolation--with children receiving only the puppet show or only the film--even though the real world evidence suggests they will not be presented in that manner to actual child patients, and the research evidence suggests this is less than optimally effective.

At any rate, what I am arguing for here is a combination of theoretical and pragmatic responsibility, for the examination of the procedure as it will be used in the real world and then for robust experimental control within the real world limitations. Knee-jerk requirements for component analysis must give way to meaningful comparison or, as I've been arguing here, you and future researchers may choose not to do comparative research.

However, there are several reasons that you might, in spite of everything,

decide you want to do comparative research. First, a lot of our colleagues are suggesting that it offers us the best chance to improve our existing therapeutic techniques. Goldfried (1980) in a recent article in the American Psychologist argues that far too much time has been spent in careful analysis of single techniques and far too little time has been expended finding out what other techniques have to offer. Similarly, Hersen (1981) in an article entitled "Complex Problems Require Complex Solutions" has urged psychologists to look behind a one technique approach to a more conceptually integrative approach. Finally, Azrin (1977) made a cogent plea for the use of multi-component treatments to achieve the greatest success possible, for comparisons among existing techniques, and particularly for the comparison of existing effective techniques with one another rather than with a no-treatment control. To do less is to limit the effectiveness that might be in trade for a detailed analysis of what effectiveness we currently have.

There is a second reason you might choose to do comparative research. Such research would allow you the freedom to use a variety of different technologies rather than repeating a single treatment and would allow you to examine how the techniques might fit in reference to one another, how they might interact, and where each might excell over the other in creating maximal impact.

Finally, you might want to do comparative group research because in the end it may merge profitably with research concerned with individual subjects. This research also is very important and makes badly needed contributions in its own right. A merger of the two approaches may deliver a set of procedures which would be most appropriate for the individual child and yet which can be expected to be routinely employed in a real world hospital system typically opposed to individualized treatment, a pragmatic as well as an effective solution. Currently in our research group, we are comparing a very minimal treatment (an introduction,

minimal information, and a tour), with a modeling group plus tour, and with a group getting both tour, modeling and coping techniques. We are also attempting to ascertain the parents' typical coping style and mode of preparing the child, the child's typical methods of dealing with stress and current attitude toward hospitalization. It may be that some children are better off with the minimal preparation, while others are better off with more detailed information and modeling, but not with the coping techniques and finally some children may profit most from all three techniques. If this project or later research should demonstrate that this is the case, the children could be prepared economically as usual, in a group, with children being excused from the procedures at differing times, until only the children who might profit from the entire set of procedures would be left. We are also working on another program which will utilize a branching approach and which will be routinely administered by the nursing staff. Since the adult literature implicates the amount and specificity of information given to individuals of differing coping dispositions as critical, we are going to give the child general information and then ask at critical junctures if the child wishes to hear more about this. One might expect a child who is denying or highly anxious to avoid specific information, while children who seek out and benefit from specific information would wish to hear the details. This again is a single treatment program automatically individualized for each child. There are many other exciting possibilities for approaches which would have a single treatment modality, individualized for different children, but since our time is up, this example must suffice for now.

I want to close by urging two things. First, a healthy respect for the value of differences in the experimental approaches to problems within this area and a flexibility in evaluating alternative approaches. Second, I particularly want to urge a respect for pragmatism. Perhaps it's time for one of us to study

implementation itself, to see if the present situation--few preparation programs and fewer still children served--can be improved. In the meantime, we must balance our search for the ideal, the optimal preparation procedure for a single child with the desire for maximally effective preparation for all at-risk children.

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